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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,355	01/04/2005	Sandy Ling	92389	9399

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EXAMINER	
DESCHERE, ANDREW M	
ART UNIT	PAPER NUMBER
2836	
MAIL DATE	DELIVERY MODE
07/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/501,355	LING, SANDY	
	Examiner	Art Unit	
	Andrew M. Deschere	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 24 June 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 24 June 2004. (8-23-04)
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to because:

- Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
- Figure 3 has "amplifier" misspelled "emplifier".
- Figure 7 has "circuit" misspelled "ciruit".
- The details of Figures 7-11 are not legible.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because the sentence "The characteristic is that the output current given of the voltage regulating unit is no longer selection of one out of many anymore..." is grammatically improper. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: on page 2 of the specification, third line from the bottom, "defects" is misspelled "deflects". Appropriate correction is required.

Claim Objections

The claims are objected to because they include reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

In claim 5, "a voltage linear combination circuit" should read "the voltage linear combination circuit".

Claim 7 recites the limitation "the current regulator unit". There is insufficient antecedent basis for this limitation in the claim. The Examiner assumes this limitation was intended to state "a current regulator unit".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-4 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "the divider". There is insufficient antecedent basis for this limitation in the claim. For examination purposes, the Examiner interprets "the divider" as a junction, splitting the square wave to feed multiple components.

Claim 3 recites the limitation "the synchronizing square wave generator". There is insufficient antecedent basis for this limitation in the claim. Examiner assumes this claim to depend from claim 2.

Neither the context of claim 4 nor the specification provides a definition of the term "power switching tube". For examination purposes, the Examiner interprets "power switching tube" as a switching element.

Claim 4 recites the limitation "the carrier wave". There is insufficient antecedent basis for this limitation in the claim. For examination purposes, the Examiner interprets "the carrier wave" as a transmission of the SPWM signal.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, and 6-9 rejected under 35 U.S.C. 102(b) as being anticipated by Kawabata (US 4,947,310).

Claim 1: Kawabata discloses a parallel operating scheme for plural inverters 1 and 2 (Figure 2). Within each inverter, a PLL 130 generates a signal to ensure synchronization with the other inverters, acting as a synchronous unit. A sine wave reference voltage 129 is produced, yielding voltage given generation (column 4, lines 5-33). Inverter body 100 acts as a power amplifier, converting the input DC voltage 5 into an AC voltage (column 3, lines 61-67). Voltage is regulated by voltage control unit 126, which combines at node 124 with signals from capacitor current reference 127 and limiter 125, output to PWM circuit 134 via limiter 123 and current control circuit 121; thusly, a signal for voltage regulation is formed from a linear combination and ultimately output to the inverter body. (column 4, lines 39-63).

Claim 4: PWM circuit 134, which is transmitted to the inverter body 100, may use sine wave comparison (column 3, line 67 to column 4, line 4). At the output of the inverter body is a filter formed by filter reactor 102 and filter capacitor 103 (column 1, lines 20-24).

Claim 6: A voltage sensor VS 132 detects the output voltage of the inverter, allowing comparison of the output voltage with that of the voltage regulating components (column 4, lines 5-33).

Claim 7: Allotted current detector circuit 131 maintains even current distribution with respect to the number of inverters that are active (column 4, lines 55-63).

Claims 8 and 9: Kawabata discloses current and voltage allotment detection according to circuit parameters in column 5, lines 11-35.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata in view of Deng (US 6,178,103).

Kawabata discloses the above parallel inverter system, including limiters 123 and 125 to prevent overcurrent conditions, but teaches the use of a PLL connected to the output bus for synchronization. Deng teaches a parallel voltage inverter circuit that uses a square wave to synchronize the inverters. A square wave generator 12 outputs a square wave 18, which is divided and applied to parallel voltage source inverters VSI (Figure 1; column 2, line 57 to column 3, line 29). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the PLL in Kawabata with the square wave synchronization of Deng to provide external control capable of setting the inverters to operate at an optimal frequency. Such a modification would reduce the effects of noise in synchronizing the inverters (Deng; column 3, lines 7-15).

Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata in view of Rehm (US 5,956,244).

Kawabata discloses the above parallel inverter system, including limiters 123 and 125, but does not explicitly teach that voltage regulating components may include P, PI, or PID regulation. These methods of regulation are well known in the art, and would have been an obvious choice to use for implementing voltage control circuit 126. Rehm teaches such a PI regulator in a parallel inverter system (Figure 1; column 6, lines 10-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use PI regulation in the voltage control circuit of Kawabata to maintain close voltage tracking with a preferred regulator.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamamoto (US 5,212,630), Yoshioka (US 6,452,290), and Hamilton (US 3,675,037) disclose parallel inverter systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew M. Deschere whose telephone number is (571) 272-8391. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMD

7/9/07

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